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Strategic Direction for the PRM TSI

Issue 1.0

Approved by the

Industry Standards Coordination Committee

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1 Purpose

1.1 This document sets out the strategic direction for GB involvement in the development of the Persons with Reduced Mobility (PRM) TSI and what GB aims to achieve with this TSI.

2 Background

2.1 Responsibilities

2.1.1 This strategic direction has been developed by GB PRM TSI Mirror Group and is intended for use by those within GB involved in amending the PRM TSI, either directly or via membership of representative bodies support groups.

2.2 ERA mandate

2.2.1 ERA mandate C(2010)2576 of 29.4.2010 sets out the scope of the changes to the TSI. This strategic direction therefore covers the following technical areas:

- Implications of a extension of scope off the TENs routes
- Issues associated with splitting (or not) the requirements into the applicable sub-systems
- Dealing with issues arising from the implementation of the published PRM TSI and technical progress, particularly recent Euronorm development
- Closure of open points and the correction of errors
- Integration of Technical Opinions given by the ERA
- Ensuring that the TSI is adapted to technical progress, market trends and to social requirements (ERA Regulation (EC) No 881/2004)

2.3 Key stages in the amendment of the TSI

2.3.1 The project commenced in May 2011 with an initial scope or areas to be addressed due by Autumn 2011. Working party meetings during the remainder of 2011 considered amended text for some sections, and wider policy issues on implementation, registers, etc.

2.3.2 The preliminary report and any amendments to the Specific Cases will be addressed during the first two quarters of 2012 with the final draft in Q4 2012.

2.3.3 The Final report and recommendations to the Commission are planned for Q4 2012.

2.3.4 The GB PRM TSI Mirror Group will meet ahead of each planned ERA Working Party meeting (unless progress can be agreed on-line).

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2.4 Period of validity of the strategic direction

2.4.1 This strategic direction is valid until the vote at Railway Interoperability and Safety Committee (RISC) has taken place. There will be a review of the strategic direction in December 2012 if RISC has not voted by then.

3 Guidance for developing the TSI

3.1 Documents

3.1.1 The following documents should be used by the GB Mirror Group members in developing the TSI:

a) A 'Guide for persons involved in the development of TSIs' [Guide] which has been developed by the Industry Standards Coordination Committee (ISCC) to provide guidance to individuals from the GB railway community who are involved, in some way, in the development of TSIs. The guide is supported by a 'checklist of factors' [factors checklist] which should be borne in mind when a TSI is being drafted, either for the first time or as a revision.

b) A 'technical check list for TSIs' [Technical checklist] which covers structural sub-systems (Infrastructure, Energy, Rolling Stock, Control-Command and Signalling), is intended to ensure, as far as possible, that the technical review of TSIs and specific cases is thorough.

3.2 Scope extension of TSIs

3.2.1 Article 1(4) of the Interoperability Directive, 2008/57/EC, requires that *'The scope of the TSIs shall be progressively extended in accordance with Article 8 to the whole rail system, including track access to terminals and main port facilities serving or potentially serving more than one user, without prejudice to the derogations to the application of TSIs as listed in Article 9'.*

3.2.2 The way in which TSIs are written must depend on the way the term *'the whole railway system'* is interpreted. If the interpretation is too wide, the TSI becomes impossible to write as it would need to cover a very wide diversity of odd systems.

3.2.3 The TSI should therefore be drafted on the assumption that the Member States adopt the exclusions set out in Article 1(3) of the Directive which states that:

'3. Member States may exclude from the measures they adopt in implementation of this Directive:

a) *metros, trams and other light rail systems;*

b) *networks that are functionally separate from the rest of the railway system and intended only for the operation of local, urban or suburban passenger services, as well as railway undertakings operating solely on these networks;*

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c) *privately owned railway infrastructure and vehicles exclusively used on such infrastructure that exist solely for use by the owner for its own freight operations;*

d) *infrastructure and vehicles reserved for a strictly local, historical or touristic use.'*

3.3 General consideration of references to ENs in TSIs

3.3.1 Article 5(8) of Directive 2008/57/EC states:

'TSIs may make an explicit, clearly identified reference to European or international standards or specifications or technical documents published by the Agency where this is strictly necessary in order to achieve the objective of this Directive. In such case, these standards or specifications (or the relevant parts) or technical documents shall be regarded as annexes to the TSI concerned and shall become mandatory from the moment the TSI is applicable. In the absence of such standards or specifications or technical documents and pending their development, reference may be made to other clearly identified normative documents; in such case, this shall concern documents that are easily accessible and in the public domain.'

3.3.2 Making an explicit reference to ENs is therefore only permitted 'where this is strictly necessary in order to achieve the objective of this Directive'. Article 5(8) should be read as a prohibition on including explicit references to ENs in TSIs, with a permitted exception under the specified circumstances. It should not be read as a general permission to include references to ENs under the specified circumstances.

3.3.3 Generally, ENs should only be referenced as ways of defining something (such as gauges). They should not be references as a way of imposing a requirement, as any necessary requirements should be set out in the TSI itself.

3.3.4 As an example, a reference to an EN was necessary in the CR INF TSI: the capability requirements for structures are defined by a parameter called (misleadingly) 'Line Category'. EN 15528:2008 is referenced simply to define what a Line Category is, and the method of deriving it (a matter too detailed to be specified in the TSI). However, EN 15528:2008 was not referenced as a way of specifying the TSI requirement – it simply permits that requirement to be expressed unambiguously.

3.4 National rules

3.4.1 The TSI should be drafted to eliminate references to the use of national rules as a way of meeting an essential requirement (other than as a specific case in chapter 7). Such references are common in TSIs drafted under AEIF but are not usually present in TSIs drafted under ERA.

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3.4.2 If the TSI intends to cover a point, but there is no agreed requirement, this should be identified as an open point.

3.4.3 If the TSI has nothing to say about a point, it should remain silent. It does not need to say that the issue is dealt with by application of national rules.

4 Principles for developing the TSI

4.1 Aims for GB in developing the TSI

4.1.1 The overall aims for GB in developing the TSI shall be to:

a) Achieve a specification that allows GB to build economic and cost effective rolling stock and infrastructure subsystems

b) Produce a specification that delivers the essential requirements but is not too prescriptive

c) Produce a specification that does not inhibit innovation

d) Produce a specification that is aligned with the other applicable sub-system TSIs (in particular Rolling Stock and Infrastructure).

e) Produce a specification that has well structured relationship with the wider field of European standards and specifications

f) Produce a standard that is fit for purpose within GB requirements and structure gauge

g) Ensure that there is no reduction in existing overall levels of safety

h) Enable the achievement of a cost effective transition to conformity with TSI target subsystems, to the extent that GB intends to do so.

i) Enable GB to satisfy its responsibilities with regard to the UN Convention on the Rights of Persons with Disabilities

4.1.2 Each of these principles is to be applied to the GB specific technical issues in sections 5 and 6 below as the TSI is developed.

5 GB specific issues

In this section are set out the specific GB issues that must be addressed when drafting the TSI. Where the arguments used to justify a previous specific case are still valid, it sets out the continuing need for this specific case in the following paragraphs by applying the principles in section 4 to each issue.

5.1 List of different GB practices

5.1.1 There are no examples of where GB practice is currently different to 'standard' European practice, except in the case of platform geometry – see 5.4.2 (below)

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5.2 Changes to GB practices

5.2.1 There are no examples of where there is a need for GB to change existing practices.

5.3 Temporary specific cases

5.3.1 There are no examples of where there is a need for a temporary Specific Case that will enable GB to comply with requirements in the revised PRM TSI in due course.

5.4 Permanent specific case

5.4.1 The key requirement for GB in terms of Specific Cases relate to the existing platform geometry that exists across the GB mainline network, primarily resulting from the nominal platform height of 915mm – the TSI permits either 55mm or 760mm. The justification originally submitted for the published TSI remains and will be reviewed prior to submission. The arguments are based on the disproportionate costs of infrastructure and rolling stock renewal to meet the requirements mandated by the TSI.

5.4.2 It is understood that the aspect of the PRM TSI relating to platform geometry will be transferred to the revised INF TSI, in which case the GB Specific Case will need to transfer as well. At the same time, the wording will be revised to refer only to compliance with national technical rules notified for the purpose.

5.5 Development of the specific cases

5.5.1 It is not envisaged that additional specific cases will be required for GB, but this will be kept under review as the draft PRM TSI text is developed. Where such cases are identified, the arguments will be based on an economic case and submitted for cross-industry consideration.

5.5.2 There is a desire at DfT to expand the GB gauge specific case to additionally allow a nominal platform height of 1100mm. Platforms at this height are planned for the central tunnel section of Crossrail in order to deliver level access to the train - so improving safety, reducing dwell time and allowing independent access for wheelchair users (which itself will reduce dwell times and staffing resources). By including this within the GB Specific Case, it would avoid the need for a derogation in due course

6 General issues

6.1 In addition to the specific technical issues, there are a number of general issues that need to be considered in the redrafting of the PRM TSI.

6.2 Identifying inconsistencies between HS and CR TSIs

6.2.1 There are no inconsistencies identified since the High Speed TSIs refers out to the PRM TSI for mandatory requirements applicable to Persons with Reduced Mobility.

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6.3 Changes required for extension in scope

6.3.1 It is not envisaged that there are any changes to the technical requirements element as a result of the extension of scope, the original PRM TSI was drafted with a view to requirements being equally applicable 'off-TENS'. The exclusions from scope, as set out in 3.2.3 above, mean that specific requirements applicable to these types of network are out of scope of the PRM TSI.

6.3.2 However there are a number of aspects of the PRM TSI that should be enhanced as follows:

6.3.3 The threshold for when a project is considered to be sufficiently "major" to warrant the application of TSIs should be given greater clarity in the PRM TSI.

6.3.4 The implication of using deadlines to improve levels of accessibility is under consideration by the ERA but it is recognised that this requires financial support. While GB supports such an approach for rolling stock, a single cross-EU deadline is unlikely to be appropriate as it could not reflect the significant different levels already achieved between different Member States (MS).

6.3.5 GB supports the proposal for the TSI to mandate that each MS produces an Implementation Plan by a given date. Such a Plan would set out how that MS will accelerate the implementation of the TSI, above that that would be achieved through on-going replacement, renewal and upgrade.

6.3.6 The recently published CR LOC&PAS TSI provides with limitations (in clause 7.1.1.2.4) for new vehicles of an existing design authorised for placing into service, to continue to be authorised up until mid 2017. There is a need to ensure that the revised PRM TSI provides the same facility.

6.4 Technical corrections

6.4.1 There is a need to clarify the requirements for passenger alarms which are typically used as 'call for aid' devices through alignment wit revisions planned in the CR LOC&PAS TSI and the supporting Euronorms.

6.4.2 Additional, but more detailed changes are set out in Appendix 1, the GB Mirror Group issues log. This will be reviewed regularly by the GB Mirror Group when it meets to review the development of the PRM TSI.

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6.4.3 Information registers - As with other TSIs, the PRM TSI includes requirements for some information to be registered. Since the publication of the TSIs, different WPs have been working on the development of Registers: "RINF" for Infrastructure and "ERATV" for Rolling Stock. Much of the Infrastructure information required to be registered by the PRM TSI should not go in the RINF as this is focussed on providing information to the industry. Instead the information required by the PRM TSI about station accessibility should be available for passengers in accessible formats.

6.5 Closing out open points

6.5.1 The PRM TSI contains a number of Open Points which it is anticipated will be closed out by the publication of a suite of Euronorms currently under development. It is likely that the timing of the publication of the Euronorms will not be compatible with the development of the revised PRM TSI and therefore text from the draft Euronorms may be imported into the TSI as an interim solution.

6.6 Additional open points

6.6.1 The PRM TSI contains extensive references to the use of National Rules with respect to those aspects applicable to station, in particular away from the platform / train interface. For example, clause 4.1.2.10 - Lighting states: 'The station forecourt lighting shall be in accordance with European or National Rules'. Also, clause 4.1.2.17 - Ramps, escalators, lifts, travelators states 'Ramps shall be installed for PRM unable to use stairs where lifts are not provided. Ramps shall be in accordance with European or National Rules. Where fitted, escalators shall have a maximum speed of 0,65 m/s and shall be designed in accordance with European or National Rules'.

6.6.2 As there is no agreed pan-European accepted standard for either station lighting or ramps, escalators etc, the PRM TSI permits the use of standards in use in each Member State. The decision required is to determine whether it is intended to develop standards or accept that it is sufficient to adopt standards local to each Member State.

6.6.3 Therefore all aspects within the PRM TSI where reference to 'national rules' is used should be changed to either declare the matter as an Open Point, or, from a GB preferred position, remove the requirement as being out of scope of Interoperability.

6.7 TSI issue log

6.7.1 There are two remaining issues listed in the TSI Issues Log that need to be addressed in the revised drafting of the PRM TSI:

6.7.2 Clause 4.1.2.19 states

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'It is permitted for the width of the platform to be variable on the whole length of the platform. The minimum width of the platform without obstacles shall be the greater of either:

- the width of the danger area plus the width of two opposing freeways of 800mm (1600mm) or;

For a single side platform 2500mm, or for an island platform 3300mm (this dimension may taper to 2500mm at the platform ends).'

The issue for GB is that the "acceptable length of the platform end taper" need to be defined.

6.7.3 Clause 4.2.2.6.3.1 states:

"There shall be sufficient space inside the toilet compartment to enable a wheelchair as defined in Annex M to be manoeuvred to a position adjacent to the toilet seat, see figure 8a."

The issue for GB is that it states 'a' position, not 'both' positions or 'either' position.

6.8 Changes to minimise references to ENs

6.8.1 There are minimal references in the existing PRM TSI to published Euronorms due to the limited number available. The work underway to produce a set of complimentary ENs is underway, however it is unlikely that they will be available in time for the publication of the revised PRM TSI.

6.9 Changes to eliminate the use of national rules

6.9.1 See 6.6 for references to the use of national rules and the need to either determine the requirement is an Open Point, or that it is outside the scope of Interoperability.

6.10 Interoperability Constituents (ICs) and Interchangeable Spare Parts (ISPs)

6.10.1 There are a number of Interoperability Constituents listed in the PRM TSI; the GB Mirror Group does not envisage any additional ICs being identified.

6.10.2 However, a number of ICs should be removed, as follows

a) Baby changing facilities (4.2.2.6.3.2) and instead, be part of the Toilet cubicle IC.

b) Passenger Information systems (4.2.2.8.4) as the requirement only applies to the size of the lettering.

c) Labels (various clauses) not specific assessable requirements

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7 Feedback to ISCC

7.1 Reporting arrangements

7.2 Reports will be made to ISCC on progress with the development of the TSI. Reports may be appropriate when:

a) The preliminary draft of the TSI is available

b) The GB specific case(s) has/have been developed

c) Presentations by ERA are due to be made to RISC

d) The final draft is submitted to RISC for vote.

7.3 Where it appears that the development of the TSI is at risk of deviating significantly from the direction set out in this document, the GB PRM TSI Mirror group shall report to ISCC on the issues with recommendations on any further action that needs to be taken.

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Appendix A

Request for change of TSI text

Note about category : Correction / Adaptation / Missing

	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	Section 4	A		The text in Section 4 is currently poorly arranged, with many requirements included within several paragraphs, all with only one reference number. Eg. 4.2.2.8.3 has 18 paragraphs with multiple requirements. This is inefficient from a compliance assurance view-point, and when attempting to reference individual requirements	The format should be amended so that each requirement has a unique reference number	
		C	Inappropriate wording within the TSI makes compliance ambiguous. E.g. ergonomic, legible, clear, comfortable are used but are difficult to provide a simple "yes/no" assessment for			

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.3 & 4.2.2.6.3.1 & 4.2.2.11	A	Text referring to alarm device "to inform a person who can take action"	There is disagreement about the role of this device. Some parties believe this should only be a "call-for-aid" and labelled accordingly. Indeed clause 4.2.5.3 of the CR LOC & PAS TSI states that a Passenger Alarm device is not to be fitted in toilets. However, when in danger wheelchair users may be unable to access true alarms elsewhere in the train (eg they are often placed high up near exit doors) so the UK believes that it is discriminatory for the devices required by the PRM TSI to have reduced functionality. Further "call-for-assistance" and "call-for-information" devices are mentioned separately from alarm devices in 4.2.2.8.2.2 and are required to have different signage	Clarify that one emergency alarm device with the same functionality, appearance and signage as alarm devices for other passengers should be provided within normal reach of someone in the wheelchair space, universal toilet and accessible sleeping accommodation. A second, separate system for "call-for assistance" should be provided using the sighting and labelling requirements currently in the TSI	
	4.1.2.11.1 & 4.2.2.8.2.1	Signage requirements	These sections are confusing and should be improved			
	4.1.2.11.1 & 4.2.2.8.2.2	C	In universal toilets and wheelchair accessible toilets	Confusing	In universal toilets ~~and wheelchair accessible toilets~~	
		M	Standard suite of pictograms and tactile symbols within toilets, including positioning, should be created –perhaps consider those in UIC leaflet 413			
	4.1.2.6	C	Transparent obstacles	Provide definition of "transparent"	"greater than 50% light transmission"	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.1.2.9.1	M	Text on electronic devices for displaying pricing information	This should be made an Interoperable Constituent and should be more similar to devices in other retail situations		
	4.1.2.9	M	Include some access provision for when "audible information on demand" is provided			
	4.1.2.10	M	Lighting	Suggest minimum lighting level for forecourts (rather than leaving to European or National Rules)		
	4.1.2.10	A	Lighting	Give better definition of meaning of “main entrance, stairs”		
	4.1.2.10	A	Lighting	Query purpose of additional 40 lux above ambient if that is <100 lux (why not simply achieve 100 lux?)		
	4.1.2.10 paragraph 2	A	Lighting "have a colder colour temperature"	It is difficult for NoBo to assess ambient colour temperature as this varies. Therefore fix “colder colour temperature” – proposed as >5000K		
	4.1.2.10 paragraph 4	A	Lighting "have a different colour temperature"	It is difficult for NoBo to assess ambient comparator colour temperature as this varies.		
	4.1.2.10 paragraph 4	A	Clarify purpose of "a minimum of 15 lux increase over that provided in adjacent areas"	Is this to create light pools to draw people to the information?	Delete this requirement if its purpose is unknown	
	4.1.2.11.2	A	Reading distance in mm divided by 250 = font size	A minimum height size for infrastructure text and pictograms must be set as current viewing distance *‘divided by 250*‘ means a pictogram viewed at a 1 metre would only need to be 4mm tall (recommended sizes placed in EN)		

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.1.2.11.2	A	Reading distance in mm divided by 250 = font size	This formula was produced for normally sighted people – it may not be appropriate for partially sighted people	Use DIN 32975 instead	
	4.1.2.13	M	Visual evacuation announcements on departure boards ought to be connected to audible fire alarms			
	4.2.1.19	C	Platform width and edge of platform. It is permitted for the width of the platform to be variable on the whole length of the platform. The minimum width of the platform without obstacles shall be the greater of either: • the width of the danger area plus the width of two opposing freeways of 800mm (1600mm) or, For a single side platform 2500mm, or for an island platform 3300mm (this dimension may taper to 2500mm at the platform ends).	The "acceptable length of the platform end taper" need to be defined.	Platform width and edge of platform. It is permitted for the width of the platform to be variable on the whole length of the platform. The minimum width of the platform without obstacles shall be the greater of either: • the width of the danger area plus the width of two opposing freeways of 800mm (1600mm) or, For a single side platform 2500mm, or for an island platform 3300mm (this dimension may taper to 2500mm at the platform ends -- the length of the taper being no more than X metres).	
	4.1.2.21.1 Final paragraph	C	provision for the disabled or handicapped persons	"handicapped" is not appropriate.	provision for ~~the~~ disabled ~~or handicapped~~ persons”	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.2.1 paragraph 2	M	Handholds or other items that can be used for personal stability shall be positioned at a height of between 800mm and 1200mm above the floor…	A datum point of the handhold needs to be set	Handholds or other items that can be used for personal stability shall be positioned at a height of between 800mm and 1200mm above the floor, measured from the centre of the usable part of the handhold…	
	4.2.2.2.1 Paragraph 1	A	Handholds or vertical handrails or other items that can be used for personal stability, whilst using the aisle, shall be provided on seat backs of all aisle-side seats unless the seat touches the back of another seat facing in the opposite direction which is fitted with a handhold or touches a partition.	Experience in the UK suggests that some relaxation should be permitted, otherwise unexpected situations could be created, such as two handholds on seats that are close but do not touch, or when a small piece of rubber is used to artificially join a seat and partition in order to meet this requirement (photos available)	Handholds or vertical handrails or other items that can be used for personal stability, whilst using the aisle, shall be provided on seat backs of all aisle-side seats unless the seat is within 50mm of the back of another seat facing in the opposite direction which is fitted with a handhold, or is within 50mm of a handrail or a partition.	
	4.2.2.2.1 Paragraph 1	A	Handholds or vertical handrails or other items that can be used for personal stability, whilst using the aisle, shall be provided on seat backs of all aisle-side seats unless the seat touches the back of another seat facing in the opposite direction which is fitted with a handhold or touches a partition.	Experience in the UK suggests that allowance for reclining seats needs to be made	Handholds or vertical handrails or other items that can be used for personal stability, whilst using the aisle, shall be provided on seat backs of all aisle-side seats unless the seat is within 50mm of the back of another seat facing in the opposite direction which is fitted with a handhold, or is within 50mm of a handrail or a partition, when either in the upright or reclined position	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.2.2.1 Paragraph 5	M		Users of priority seats should have access to tables or flip-down trays if these are provided for other passengers	If tables or trays (whether fixed, adjustable or folding) are fitted for the use of passengers at not less than 10 per cent of the seats (other than priority seats) in a rail vehicle, a similar table or tray must be fitted for the use of persons in each priority seat.	
	4.2.2.2.2.1 Figure 3	C	Reference point for 1680mm minimum height	This shows the wrong range in Figure 3. Figure 2 and 4 are correct	Amend Figure 3	
	4.2.2.2.2.1 Figures 2, 3 and 4	C	Labels showing front clearance of 680mm, and clearance of 600mm between facing seats	These should be minimums	Add "min" to these labels, as with other measurements in the figures	
	4.2.2.2.2.1 paragraph 8	M	The top of each priority seat cushion shall be between 430 and 500mm above floor level at the front edge of the seat.	The UK has received representations from people of short stature (who are within ths definition of PRM) who suggest that even 430mm is too high and that their feet do not touch the floor, which can be uncomfortable for anything except short journeys.	Should a small number of lower seats be provided for people of short stature – and labelled as such?	
	4.2.2.3	M	Numbers of wheelchair spaces	There is no requirement for wheelchair spaces in First Class. This could be seen as discriminatory. However, it might be unrealistic to require a wheelchair space (and universal toilet) if First Class only makes up part of a vehicle.	Where one or more rail vehicles in a train provide a different class of passenger accommodation from another rail vehicle in that train there must be at least one wheelchair space for each class of passenger accommodation on that train.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.3 paragraph 4	C	If boarding aids are situated at stations, they shall accommodate a wheelchair with characteristics as detailed in Annex M:	Text does not belong here	Delete	
	4.2.2.3 paragraph 6	C	The minimum distance in the longitudinal plane between the wheelchair space and a front surface 2 shall be in accordance with figure 5		The minimum distance in the longitudinal plane between the wheelchair space and a front surface 2 shall be in accordance with figure 5 or 6	
	4.2.2.3 paragraph 10	C	There shall be a structure or other acceptable fitting 700mm wide (as shown in figure 6)		There shall be a structure or other acceptable fitting at least 700mm wide (as shown in figures 5 and 6)	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.3 Paragraph 11	M		Wheelchair users should have access to tables or flip-down trays if these are provided for other passengers	If tables or trays (whether fixed, adjustable or folding) are fitted for the use of passengers at not less than ten per cent of the seats (other than priority seats) in a rail vehicle, a similar table or tray must be fitted for use in any wheelchair space in that vehicle by a disabled person in a wheelchair. The operator of a rail vehicle must provide assistance to erect a removable or folding table or tray, or to alter the height of an adjustable table, in a wheelchair space upon request made by or on behalf of a disabled person in a wheelchair. There must be no obstruction in the space under a table in a wheelchair space other than a table-leg, but any table-leg must be positioned so that unobstructed clearance of not less than 700 millimetres in width is given under the table. The lowest point on the underside of a table or tray top in a wheelchair space must be not less than 720 millimetres in height measured vertically from the floor.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.3 paragraph 13	C	When the alarm device has been activated a visual and audible indication that the alarm system is working shall be provided.		When the alarm device has been activated a visual and audible indication that the alarm system is working shall be provided to the wheelchair user.	
	4.2.2.3 Figure 7	A	Reach range for wheelchair user	Figure 7 is inadequate	Use diagram from EN 12183	
	4.2.2.3 paragraph 14	M	The alarm device shall not be placed within a narrow recess or any other form of shielding which prevents immediate palm operation.	Experience suggests that some sort of accessible cover may avoid accidental activation	The alarm device shall not be placed within a narrow recess or any other form of shielding which prevents ~~immediate~~ palm operation. A cover that can be moved permanently out of the way by the palm of the hand is acceptable.	
	4.2.2.3 paragraph 16	M	A sign conforming to Annex N Clauses N.3 and N.4 shall be placed immediately next to, or in, the wheelchair space so as to identify the space as the wheelchair space.	Advice to wheelchair users on how to position themselves should also be provided	A sign conforming to Annex N Clauses N.3 and N.4 shall be placed immediately next to, or in, the wheelchair space so as to identify the space as the wheelchair space. Advice to wheelchair users on how to position themselves should also be provided	
	4.2.2.4.1 paragraph 3	M	If pushbuttons or other remote control devices are provided for operation of doors then each pushbutton or device shall be operable by a force not greater than 15 Newtons.	Pushbuttons should be palm operable	If pushbuttons or other remote control devices are provided for operation of doors then each pushbutton or device shall be operable by the palm of a hand exerting a force not greater than 15 Newtons.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.4.2.1 paragraph 3	M	External doors shall be painted or marked on the outside in a way that gives a contrast to the rest of the vehicle body-side.	"rest of the bodyside" is too restrictive	External doors shall be painted or marked on the outside in a way that gives a contrast to ~~the rest of~~ the vehicle body-side surrounding it.	
	4.2.2.4.2.1	C	When a door that is automatically or remotely closed, is about to operate, an audible alarm shall be given to persons inside and outside the train. The alarm shall sound for a minimum of 2 seconds before the door starts to close and shall be different in tone to that used when the door is released. The alarm shall continue to sound while the door is closing	There needs to be a clear difference between what are alarms and what are alerts. The door closing signal is an alert not and an alarm	When a door that is automatically or remotely closed, is about to operate, an audible alert shall be given to persons inside and outside the train. The alert shall sound for a minimum of 2 seconds before the door starts to close and shall be different in tone to that used when the door is released. The alert shall continue to sound whilst the door is closing	
	4.2.2.4.2.1 paragraph 9	C	The alarm shall sound for a minimum of 2 seconds before the door starts to close and shall be different in tone to that used when the door is released.	Consistency of terminology	The alert shall sound for a minimum of 2 seconds before the door starts to close and shall be different in tone to that used when the door is ~~released~~ enabled or opened.	
	4.2.2.4.2.1	C	Passenger door audible warning – Door enabled for opening – "A continuous or slow pulse multi-tone…of 2 combined tones"	There is disagreement over the meaning of "continuous…of 2 tones". Does this mean both tones must be made at the same time? Or can they be alternate?		

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.4.2.1	M	Sound pressure levels for passenger door audible warnings	70dB +/- 2 dB is said to be unachievable by other CEN Working Groups, and can be too loud at quiet stations at night.	Adaptive devices that adjust the volume to be 5dB above the ambient sound should be permitted (indeed, should be encouraged)	
	4.2.2.4.2.1	M	Frequencies for passenger door audible warnings	Research for DfT suggests that white noise (like the reversing sounds for road trucks) gives better direction finding advice and is more perceptible above background noise. Indeed, the research suggests that white noise is sufficiently perceptible to only need to be broadcast at the same volume as ambient noise levels. This would help reduce nuisance to passengers and people living near stations		
	4.2.2.4.2.1 paragraph11	C	The method of door activation shall be by traincrew or semi-automatic (i.e. passenger pushbutton operation).	Automatic operation is recognised elsewhere	The method of door activation shall be by traincrew, ~~or~~ semi-automatic (i.e. passenger pushbutton operation) or automatically.	
	4.2.2.4.2.2 paragraph 1	M	If pushbuttons are provided for operation of doors then each pushbutton shall have visual indication, on or around the push button, when enabled and shall be operable by a force not greater than 15 Newtons.	Pushbuttons should be palm operable	If pushbuttons are provided for operation of doors then each pushbutton shall have visual indication, on or around the push button, when enabled and shall be operable by the palm of a hand exerting a force not greater than 15 Newtons.	
	4.2.2.4.2.2 paragraph 1	C	If the door closure is remotely activated by traincrew, the visual indication shall cease not less than 2 seconds before the door starts to close.	Automatic operation is recognised elsewhere	If the door closure is remotely activated by traincrew, or is automatic, the visual indication shall cease not less than 2 seconds before the door starts to close.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.4.3.1	C	If more than 75% of a door's surface is made of a transparent material, it shall be marked with a minimum of two prominent bands made of signs, logos, emblems or decorative features. They shall be at a height between 1500mm and 2000mm for the upper band, and between 850mm and 1000mm for the lower band, contrasting with the background over the entire width of the door. These bands shall be a minimum of 100mm high.	Whilst recognising, and accepting, the need some designers have tried to get round this by placing a central band and then arguing that the transparent area is now less than 75%. On challenging this, on the grounds that the marking does not form part of the produced door, calculations have been produced that demonstrate that the normally available doors (together with the glass frame(actual produces only 68% transparent material even though some of it is not visible. As such they also argue that no manifestation (banding) is required. It would be better to give a more prescriptive definition as to heights etc and actually mandate the upper and lower manifestations.		
	4.2.2.4.3.2 paragraph 1	M	If pushbuttons are provided for operation of doors then each pushbutton shall be illuminated (or the surround shall be illuminated) when enabled and shall be operable by a force not greater than 15 Newtons.	Pushbuttons should be palm operable	If pushbuttons are provided for operation of doors then each pushbutton shall be illuminated (or the surround shall be illuminated) when enabled and shall be operable by the palm of a hand exerting a force not greater than 15 Newtons.	
	4.2.2.5	C	Vehicle access steps shall be illuminated to a minimum of 75 Lux, measured across 80% of the width of the step by a light placed within or immediately adjacent to it.	Where there is no step and the edge of the floor forms the door threshold, good lighting is just as important here	Vehicle access steps shall be illuminated to a minimum of 75 Lux, measured across 80% of the width of the step by a light placed within or immediately adjacent to it. In this instance, this provision provides applies equally where there is no step and where the edge of the floor forms the threshold of the train.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.6	C	Consistent terminology through TSI	Some terms are used interchangeable. Eg toilet, toilet pan, toilet compartment and toilet cubicle are sometimes used for the same meaning		
	4.2.2.6.2 paragraph 5	C	Any door control device, and other equipment inside the toilet compartment (except for baby change facilities) shall be operable by exerting a force not exceeding 20 Newtons.	This is poor English. You do not emerge with a different baby after using these facilities!	Any door control device, and other equipment inside the toilet compartment (except for ~~baby~~ nappy change facilities) shall be operable by exerting a force not exceeding 20 Newtons.	
	4.2.2.6.2 paragraph 6	C	Any control device, including flushing system, shall be provided in a contrasting colour and/or tone to the background surface	Meaning of "tone" is not clear	Any control device, including flushing system, shall ~~be provided in a~~ contrast~~ing colour and/or tone to~~ with the background surface	
	4.2.2.6.2 paragraph 10	C	The toilet seat and lid, and any handrails shall be in a contrasting colour and/or tone to the background.	Meaning of "tone" is not clear	The toilet seat and lid, and any handrails shall ~~be in a~~ contrast~~ing colour and/or tone to~~ with the background.	
	4.2.2.6.3.1 and 4.2.2.6.3.2	C	Titles are in *italics*		Remove italics	
	4.2.2.6.3.1 paragraph 4	M	A visual and tactile (or audible) indication shall be given to indicate when a door has been locked.	Clarify that indications are for the wheelchair user	A visual and tactile (or audible) indication shall be given inside the toilet compartment to indicate when a door has been locked.	
	4.2.2.6.3.1 paragraph 5	C	Any door control device, and other equipment inside the toilet compartment (except for baby change facilities) shall be operable by exerting a force not exceeding 20 Newtons.	This is poor English. You do not emerge with a different baby after using these facilities!	Any door control device, and other equipment inside the toilet compartment (except for ~~baby~~ nappy change facilities) shall be operable by exerting a force not exceeding 20 Newtons.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.6.3.1 paragraph 6	C	There shall be sufficient space inside the toilet compartment to enable a wheelchair as defined in Annex M to be manoeuvred to a position adjacent to the toilet seat, see figure 8a.	It is insufficiently clear that both positions must be provided	There shall be sufficient space inside the toilet compartment to enable a wheelchair as defined in Annex M to be manoeuvred to ~~a~~ both positions adjacent to the toilet seat, ~~see~~ shown in figure 8a.	
	4.2.2.6.3.1 paragraph 7	M	In front of the toilet seat there shall be a minimum clear space of 700 mm as shown in figure 8b.	It is unclear the extent of the 700mm clear space	In front of the toilet seat there shall be a minimum clear space of 700 mm as shown in figure 8b, measured for the full width of the toilet pan and following its front profile. (insert diagram from EN?)	
	4.2.2.6.3.1 Figure 9	M	Handrail shall extend to the leading edge of the toilet	User groups suggest that a handrail should extend at least to the edge of the toilet	Handrail shall extend at least to the leading edge of the toilet	
	4.2.2.6.3.1 Figure 10	M	Figure 10 suggests that only vertically hinged handrail is acceptable	Add note that makes clear that other folding arrangements (eg to the side) are also permissible		
	4.2.2.6.3.1 Paragraph 10	M	All amenities (wash basin, soap dispenser, mirror, water dispenser and hand dryer) shall be readily accessible to a person in a wheelchair	Some Member States believe this means the amenities must be accessible to someone who is sat in their wheelchair. Other Members States (including UK) believe the amenities must be accessible to someone sat on the toilet – otherwise they will be unable to wash their hands before they transfer back to their wheelchair – and risk getting their wheelchair dirty – which is unpleasant and unhygienic	All amenities (wash basin, soap dispenser, mirror, water dispenser and hand dryer) shall be readily accessible to a ~~person in a~~ wheelchair user when sat on the toilet.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.6.3.1 paragraph 9	M	The surface of the toilet seat, when lowered shall be at a height of 450mm to 500mm above the floor level.	Measurement points needs to recognise that seats are ergonomically shaped	The surface of the toilet seat, when lowered shall be at a height of 450mm to 500mm above the floor level, measured XXX. Insert figure from EN	
	4.2.2.6.3.2	C	Use of term "baby-change"	This is poor English. You do not emerge with a different baby after using these facilities!	Use "nappy-change" instead	
	4.2.2.6.3.2	M	If separate nursery facilities are not provided a facility to enable the changing of babies' nappies shall be incorporated in the universal toilet.	No accessibility requirements are set for when nursery facilities are provided separately. This potentially excludes sections of PRMs	Apply accessibility requirements for nappy-change facilities within universal toilets to separate facilities too	
	4.2.2.6.3.2 paragraph 1	C	In the lowered position, the changing facility shall be between 800mm and 1000mm above floor level. It shall be a minimum of 500mm wide and 700mm long.	Datum points need to be provided	In the lowered position, the usable surface of the changing facility shall be between 800mm and 1000mm above floor level. ~~It~~ The usable surface shall be a minimum of 500mm wide and 700mm long.	
	4.2.2.7	M	Height of clearway	It is unclear from the text whether all clearways have to be 1950mm high. Anthropometric data suggests that 1950mm is more appropriate for the 95th percentile male than 1900mm which is normally required. However, 1950mm is almost impossible to achieve on double-deck trains and some countries' smaller gauges.	Text should be clarified. If 1950mm is retained, double-deck trains should be permitted to have a smaller requirement (a precedent for this exists under headroom requirements for priority seating)	
	4.2.2.7	M	Clearway envelope	This should be rounded at the top and bottom (as accepted for the space above priority seats), and not square edged	Include diagrams from EN to show rounded envelopes	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.8.1 paragraph 6	C	Descenders in Roman script shall be clearly recognisable and have a minimum size ratio of 20% to the upper case characters. Compressed descenders and ascenders shall not be used.	It would be helpful to include a diagram here	Use diagram from EN	
	4.2.2.8.2.1 1st & 2nd bullet	C	• Toilets, for functional information and emergency call if appropriate • Trains, for door open/close button and emergency call	"Emergency call" is not consistent with other terminology	• Toilets, for functional information and emergency ~~call~~ alarm if appropriate • Trains, for door open/close button and emergency ~~call~~ alarm	
	4.2.2.8.2.1 3rd to 7th bullet	C	The following specific PRM graphic symbols and pictograms shall be fitted: • Wheelchair symbol in accordance with Annex N Clauses N.3 and N.4 • Directional information for wheelchair accessible amenities • Indication of the wheelchair accessible door location outside the train • Indication of the wheelchair space inside the train • Indication of the universal toilets	Top bullet should be incorporated with the main text	The following specific PRM graphic symbols and pictograms shall be fitted with the Wheelchair symbol in accordance with Annex N Clauses N.3 and N.4 • Directional information for wheelchair accessible amenities • Indication of the wheelchair accessible door location outside the train • Indication of the wheelchair space inside the train • Indication of the universal toilets	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.8.2.1 Final line	C	The symbols in can be combined with other symbols (for example: lift, toilet, etc).	Poor use of examples, as this is a rolling stock application, plus typo	The symbols ~~in~~ can be combined with other symbols (for example: ~~lift, toilet~~, number or letter identifying the vehicle etc).	
	4.2.2.8.2.2 1st bullet	C	and shall have: - A visual and audible indication that the device has been operated;	Need to clarify that indication is provided at the device (and not elsewhere – e.g. guard's position)	and shall have: - A visual and audible indication at the device that shows that the device has been operated;	
	4.2.2.8.2.2 Paragraph 4	C	If there is an Emergency call device it shall comply with Annex N Clauses N.3 and N.7.	"Emergency call" is not consistent with other terminology	If there is an Emergency ~~call~~ alarm device it shall comply with Annex N Clauses N.3 and N.7.	
	4.2.2.8.2.2 4th bullet	C	- A visual and audible indication that the device has been operated;	Need to clarify that indication is provided at the device	- A visual and audible indication at the device that shows that the device has been operated;	
	4.2.2.8.2.2 Final paragraph	A	In universal toilets and in wheelchair accessible toilets, where hinged handrails are provided, a graphic symbol showing the rail in both the upright and lowered position shall be provided.	Allowance must be made for designs that do not deploy vertically	In universal toilets and in wheelchair accessible toilets, where hinged handrails are provided, a graphic symbol showing the rail in both the ~~upright~~ stowed and deployed ~~lowered~~ position shall be provided.	
	4.2.2.8.3 first paragraph	C	The final destination or route shall be displayed outside of the train on the platform side adjacent to at least one of the passenger access doors on a minimum of alternate vehicles of the train.	Current wording could permit platform mounted displays	The final destination or route shall be displayed on the outside of the train on the platform side adjacent to at least one of the passenger access doors on a minimum of alternate vehicles of the train.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.8.3 2nd paragraph	C	Where trains operate in a system, in which dynamic information is given on the station platforms within a distance of 50 meters, ……	Meters is mis-spelled Point of measurement for 50m needs to be defined	Where trains operate in a system, in which dynamic information is given on the station platforms within a distance of 50 ~~meters~~ metres from ……	
	4.2.2.8.3 2nd paragraph	C	….it is not mandatory to provide information on the sides of each vehicle	"Each" is incorrect (only alternate ones are required)	….it is not mandatory to provide information on the sides of ~~each~~ vehicles	
	4.2.2.8.3 4th paragraph	M	The next stop of the train shall be displayed such that it can be read from a minimum of 51% of passenger seats inside each vehicle.	Unlike when there are compartments (paragraph 5) there is no requirement for passenger information to be visible to wheelchair users	The next stop of the train shall be displayed such that it can be read from a minimum of 51% of passenger seats inside each vehicle, including from a minimum of 51% of wheelchair spaces.	
	4.2.2.8.3 5th paragraph	C	The requirement to make the destination and 'next stop' displays visible to 51% from passenger seats need not be met if the train is partly or wholly divided into compartments of not more than 8 seats, which are serviced by a corridor.	Current wording disapplies the 51% requirement from the whole train even if only one compartment is fitted	The requirement to make the destination and 'next stop' displays visible to 51% from passenger seats need not be met within the relevant compartments if the train is partly or wholly divided into compartments of not more than 8 seats, which are serviced by a corridor. The requirement to make the destination and 'next stop' displays visible ~~to~~ from 51% ~~from~~ of passenger seats remains for any open saloons within the train.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.8.3 10th paragraph	A	If the vehicle provides reserved seats then the number or letter of the vehicle (as used in the reservation system) shall be displayed on or adjacent to every door in characters not less than 70mm high.	Clarify that the letter or number is on the outside of the vehicle, and that it must be visible when the door is open and closed	If the vehicle provides reserved seats then the number or letter of the vehicle (as used in the reservation system) shall be displayed externally on or adjacent to every door in characters not less than 70mm high, and shall be visible when the door is open and closed	
	4.2.2.8.3 14th paragraph	C	The system shall be used to announce the destination and next stop of the train, or on departure from, each stop.	Clarification	The system shall be used to announce the destination and next stop of the train at, or on departure from, each stop.	
	4.2.2.8.3	C	Wording in Paragraph 15	This almost repeats the wording in paragraph 4, so can be deleted provided paragraph 4 is amended to say "displayed and announced"		
	4.2.2.8.3 16th paragraph	A	The spoken information shall have a minimum RASTI level of 0,5, in accordance with IEC 60268-16 part 16, in all areas.	RASTI is not appropriate for all applications	Replace with wording from EN	
	4.2.2.8.3	C	Wording in Paragraph 17	This repeats the wording in paragraph 8, so can be deleted		
	4.2.2.8.3	C	Wording in Paragraph 18	This repeats the wording in paragraph 9, so can be deleted		
	4.2.2.8.4 First paragraph	A	each complete word shall be displayed for a minimum of 2 seconds and the horizontal scrolling speed shall not exceed 6 characters per second.	Some characters (eg. M or W) are much wider than others (eg. i or 1)	each complete word shall be displayed for a minimum of 2 seconds and the horizontal scrolling speed shall not exceed an average of 6 characters per second.	

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	Clause of the TSI	**Category : C / A / M**	**Original Text**	**Comments (justification for change)**	**Proposed new text**	**Answer from ERA**
	4.2.2.8.4 First paragraph	C	Sans Serif fonts, in mixed case, shall be used for all written information.	"Typeface" is more appropriate than "font"	Sans Serif ~~fonts~~ typeface, in mixed case, shall be used for all written information.	
	4.2.2.8.4 2nd paragraph	C	Upper Case Letters and numbers used in front external displays shall have a minimum height of 70mm and on side displays 35mm on bodyside and internal indicators.	Clarification	Upper Case Letters and numbers used in front external displays shall have a minimum height of 70mm ~~and~~ with ~~on side displays~~ 35mm on external bodyside and internal indicators.	
	4.2.2.8.4 3rd & 4th paragraphs	C	Inside trains the font size shall be not less then 35mm for a reading distance in excess of 5000mm. 35mm display characters shall be considered to be legible up to a maximum viewing distance of 10000 mm.	What is the purpose of these? Minimum text height has been fixed in paragraph 3.	Delete	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.9 1st paragraph	C	Internal steps (other than those for external access) shall have a maximum height of 200mm and a minimum depth of 280 mm, measured at the central axis of the stairs. The first and the last step shall be indicated by a contrasting band with a depth of 45mm to 50mm extending the full width of the steps on both the front and the top surfaces of the step nosing. For double deck trains it is permitted to reduce this value to 270mm for the stairs accessing the upper deck.	Clarification	Internal steps (other than those for external access) shall each have a maximum height of 200mm and a minimum depth of 280 mm, measured at the central axis of the stairs (For double deck trains it is permitted to reduce this value to 270mm for the stairs accessing the upper deck). The first and the last step shall be indicated by a contrasting band with a depth of 45mm to 50mm extending the full width of the steps on both the front and the top surfaces of the step nosing. ~~For double deck trains it is permitted to reduce this value to 270mm for the stairs accessing the upper deck.~~	
	4.2.2.9	A	Maximum permitted slopes within trains, of 8%, 15% and 18%	In 1999, Section 3.3.7 of COST 335 suggested 8% and 13%. 18% was permitted for existing vehicles only – twelve years later it is not appropriate for the PRM TSI to continue to permit steeper gradients. As slopes are generally only included within double-deck trains, single deck trains should not be permitted to have any gradient.	Amend table	
	4.2.2.10 3rd paragraph	A	Doorways with more than two entrance steps shall be provided with handrails on both sides of the doorway,….. and shall be parallel with the line of the step nosing.	Differentiate these diagonal handrails from the vertical ones required in paragraph 4	Doorways with more than two entrance steps shall be provided with diagonal handrails on both sides of the doorway, ….. and shall be parallel with the line of the step nosing.	

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	Clause of the TSI	**Category : C / A / M**	**Original Text**	**Comments (justification for change)**	**Proposed new text**	**Answer from ERA**
	4.2.2.10 4th paragraph	C	Doorways with up to two entrance steps shall be provided with vertical handrails on both sides of the doorway	Clarification	Doorways with ~~up to~~ two or less entrance steps shall be provided with vertical handrails on both sides of the doorway	
	4.2.2.11 3rd paragraph	A	If a rail vehicle provides wheelchair accessible sleeping accommodation the exterior of the relevant vehicle door shall be marked with a sign in accordance with Annex N Clauses N.3 and N.4.	The outside of the accessible vehicle and the accessible compartment should be marked	If a rail vehicle provides wheelchair accessible sleeping accommodation the exterior of the relevant vehicle door and the wheelchair accessible compartment itself shall be marked with a sign in accordance with Annex N Clauses N.3 and N.4.	
	4.2.2.11	A	Wording for alarm devices in sleeping accommodation should be consistent with that for wheelchair spaces and universal toilets			
	4.2.2.11 5rd paragraph	A	The lower alarm device shall be positioned so that the control can be reached comfortably by a person lying on the floor.		The lower alarm device shall be positioned so that the control can be reached ~~comfortably~~ by a person lying on the floor.	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.12.1 4th & 5th paragraphs	A	The lowest step (first level) shall be located at the lowest limit of the vehicle construction gauge, according to the requirements of Annex C of the Freight Wagon TSI valid for this vehicle. The horizontal position of the lowest step (first level) shall be located at the outer limit of the vehicle construction gauge, according to the requirements of Annex C of the Freight Wagon TSI valid for this vehicle.	The mechanisms of deployable steps can go out of gauge when the vehicle is stationary and the step is deployed	The top surface of the lowest step (first level) shall be located at the lowest limit of the vehicle construction gauge, according to the requirements of Annex C of the Freight Wagon TSI valid for this vehicle. The horizontal position of the top surface of the lowest step (first level) shall be located at the outer limit of the vehicle construction gauge, according to the requirements of Annex C of the Freight Wagon TSI valid for this vehicle.	
	4.2.2.12.1	C	Figure 11 is referenced three times	One diagram and three tables are present.	Provide additional labelling of diagram and tables	
	4.2.2.12.2 2nd paragraph	C	Internal steps for external access shall have a maximum height of 200mm and a minimum depth of 240mm (going) between the vertical edges of the step.	Clarification	Internal steps for external access shall each have a maximum height of 200mm and a minimum depth of 240mm (going) between the vertical edges of the step.	
	4.2.2.12.3.4 1st paragraph	C	If boarding aids are situated at stations, they shall accommodate a wheelchair with characteristics as detailed in Annex M:	Ability to accommodate Annex M wheelchair should not be confined to boarding aids at stations	~~If~~ boarding aids ~~are situated at stations, they~~ shall accommodate a wheelchair with characteristics as detailed in Annex M:	

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	Clause of the TSI	**Category : C / A / M**	**Original Text**	**Comments (justification for change)**	**Proposed new text**	**Answer from ERA**
	4.2.2.12.3.4 2nd paragraph	C	The device surface shall be slip resistant and shall have an effective clear width of at least 760mm, except for lifts for which 720mm is permitted. If the plate is less than 900mm wide, it shall have raised edges on both sides to prevent mobility aid wheels from slipping off.	Consistency of terminology	The device surface shall be slip resistant and shall have an effective clear width of at least 760mm, except for lifts for which 720mm is permitted. If the ~~plate~~ useable surface is less than 900mm wide, it shall have raised edges on both sides to prevent wheelchair ~~mobility aid~~ wheels from slipping off.	
	4.2.2.12.3.5 4th paragraph	C	The extension of the moveable step shall be completed before the door opening permits the passengers to cross and conversely, removal of the step may only begin when the door opening no longer permits any crossing of PRM passengers.	Clarification	The extension of the moveable step shall be completed before the door opening permits the passengers to cross and conversely, removal of the step may only begin when the door ~~opening~~ closure no longer permits any crossing of ~~PRM~~ passengers.	
	4.2.2.12.6	M		Insert wording about contrast on leading edge of ramp	The leading edge of the ramp shall have a contrasting band	
	4.2.2.12.3.6 8th paragraph	C	A secure compartment shall be provided to ensure that stowed ramps, including portable ramps, do not impinge on a passenger's wheelchair or mobility aid or pose any hazard to passengers in the event of a sudden stop.	Why is this repeated in paragraph 10, under subsystem requirements?	Delete paragraph 10	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.2.2.12.3.6 9th paragraph	A	A ramp slope shall have a maximum value of 10.2 degrees (18%).	This slope is excessive and cannot be traversed by most wheelchair users. There are also concerns about manual handling safety issues for staff providing assistance. Research by DfT ("Significant Steps") showed that 8 degrees was the maximum gradient that could be used.	A ramp slope shall have a maximum value of 8 degrees (14.05%).	
	4.2.2.12.3.7 3rd paragraph	C	Subsystem requirements. A control shall ensure that the vehicle cannot be moved when a semi-automatic ramp is not stowed.	This repeats what is in paragraph 1	Delete 3rd paragraph	
	4.2.2.12.7	M		Insert wording about contrast on leading edge of semi-automatic ramp	The leading edge of the semi-automatic ramp shall have a contrasting band	
	4.2.2.12.8	M		Insert wording about contrast on leading edge of bridging plate	The leading edge of the bridging plate shall have a contrasting band	
	4.2.2.12.3.9 10th paragraph	C	The lift shall permit both inboard and outboard facing of wheelchair.	Improved wording	The lift shall permit both inboard and outboard ~~facing~~ orientation of the wheelchair user.	
	4.3	M	Calculation of contrast	The method proposed is not appropriate for combinations of light colours, or dark colours.	Use amended approach from WG44's EN	
	4.3	M	A combination of the colours red and green is not allowed for contrast	Definitions for "red" and "green" should be given, using ISO 3864-1		
	4.3	M	When contrast is specified in this TSI there shall be a minimum value of K = 0.3	This is inappropriate for signage, where 0.6 is better	Require contrast on signage to achieve at least 0.6	

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	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	4.3	M	Make some allowance for measuring contrast on electronic (eg light emitting) displays			
	4.3	C	Definition of "First Step"	Clarification	The “First Step”, means the first step of a vehicle that a passenger shall use to board ~~or alight~~ a train. This will normally be the step that is closest to the platform edge. It may be a fixed or a moveable step.	
	4.3	C	For tactile pictograms and characters the depth should be a minimum of 0.5mm raised above the surface	0.5mm is inadequate	For tactile pictograms and characters the ~~depth should be a minimum of 0.5mm~~ height should be between 1.0mm and 1.5mm raised above the surface	
	4.3	M	The minimum character or number height shall be 15mm	A maximum character or number height is also required	~~The minimum~~ Tactile characters and numbers shall be between 15mm and XXmm in height	
	Annex M	A	Weight: Fully laden weight of 200kg for wheelchair and occupant (including any baggage)	Many powered wheelchairs will exceed 200kg when occupied. As boarding aids must be designed to accommodate 300kg, this should be the maximum weight for occupied powered wheelchairs (provided gradients of boarding ramps are low enough to be used by powered wheelchairs without assistance).	Weight: Fully laden weight of 200kg for unpowered wheelchair and occupant (including any baggage). Fully laden weight of 300kg for occupied powered wheelchairs and occupant (including any baggage) permissible provided boarding ramp angles allow for unassisted boarding/alighting	

Uncontrolled When Printed

	Clause of the TSI	Category : C / A / M	Original Text	Comments (justification for change)	Proposed new text	Answer from ERA
	Annex N	M	All pictograms should have minimum size, not just those given in Annex N.	A smaller minimum size may be permissible in toilets, where maximum viewing distance will always be lower than in the saloon or vestibule		
	Annex N	M	Permitted colour ranges for mandated signs	Closer equivalents for RAL, NCS and Pantone should be given (as some are currently significantly different) or the colours should be defined using the same system using ISO 3864-1		